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10/569,832

12/07/2006

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EXAMINER

CLARK, GREGORY D

ART UNIT

PAPER NUMBER

1794

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DELIVERY MODE

08/05/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/569,832 | <b>Applicant(s)</b><br>KOYAMA ET AL. |  |
|                              | <b>Examiner</b><br>GREGORY CLARK     | <b>Art Unit</b><br>1794              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

The examiner acknowledges the receipt of the applicants' arguments/remarks and claims. Claims 1 and 2 amended, 3-11 original.

Rejections and objections made in previous office action that does not appear below have been overcome by applicant's amendments and therefore the arguments pertaining to these rejections/objections will not be addressed.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

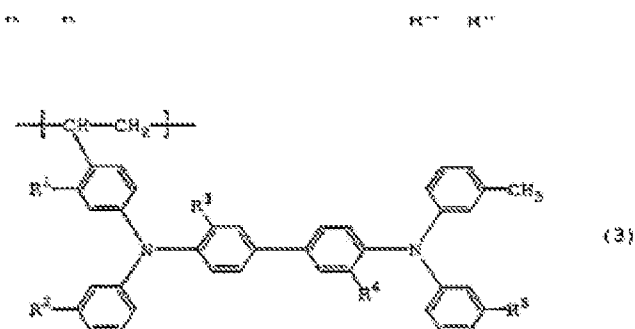
Claims 1-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,250,226. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of US7250226 discloses a polymeric phosphorescent compound obtained by the copolymerization of a phosphorescent monomer unit and a hole transporting monomeric unit which is composed of triphenylamine or triphenylamine derivatives. Triphenylamine represents the genus from which the triphenylamine derivative species in applicant's claim 2 was derived. The species claimed in the instant application is merely a bis-triphenyl amine structure, a doubled structure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected a bis-triphenyl phosphine structure for the generic triphenyl phosphine structure claimed in 7,250,226 for the hole pendant group, as it is merely a doubled, bis, triphenyl amine structure where one would expect the properties of the bis amine to be additive over a single amine in functioning as a hole transport material.

***Claim Rejections - 35 USC § 103***

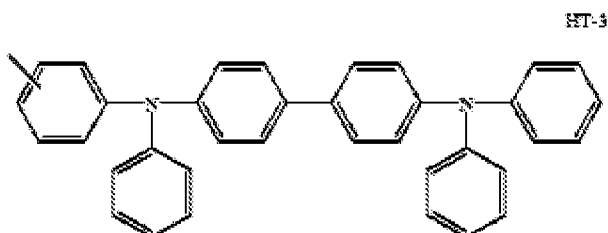
1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Regard Claims 1-7**, applicant claims a phosphorescent polymer represented by formula 3:

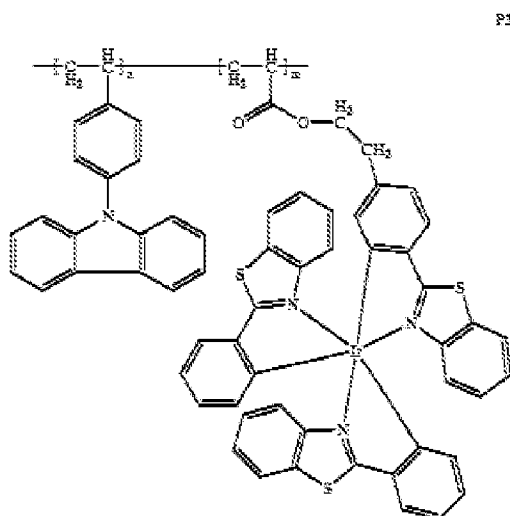


Tokito discloses a phosphorescent polymer compound containing a phosphorescent monomer unit and a monomer unit represented by formula HT3 (page 6).



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Structure P3 (page 7) shows a copolymer with a hole transporting side chain moiety attached directly to a polymerizable vinyl group of the main polymer chain and the phosphorescent side chain moiety is a transition metal complex that is connected via a polymerizable vinyl group to the main polymer chain. The reference clearly teaches that any of the groups taught for hole transporting can be used as the side chain (i.e. HT-3) in place of the amine group disclosed in P3.



Tokito also discloses that the polymer can contain electron transporting moieties which include monovalent groups of oxadiazole derivatives (structure ET1 and ET2), triazole derivatives (structure ET4), or imidazole derivatives (structure ET3) as shown on page 6.

Tokito discloses an organic light-emitting device having one or more organic polymer layers interposed between an anode and a cathode, at least one layer of the organic polymer layers includes the phosphorescent compound (paragraph 68).

**Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito (2003/0091862) as applied to claim 7 above, and further in view of Hatwar (6,127,004).**

**Regarding Claims 8-11**, Tokito discloses a phosphorescent polymer compound containing a phosphorescent monomer unit but fails to teach an anode subjected to UV ozone irradiation treatment or high-frequency plasma treatment.

Hatwar discloses depositing a fluorocarbon layer between the anode and the hole- transport layer of the organic electroluminescent device (OLED) that decreases the drive voltage and significantly enhanced the operation stability of the device (column 3, lines 39-42). Hatwar also discloses that anode contact to an OLED can be significantly improved via oxygen plasma treatment and the resulting device can be operated at low voltages, and exhibits good stability (column 2, 31-35).

As decreasing the drive voltage and enhancing the operation stability of the device are desirable features, a person of ordinary skill in the art at the time of the invention would readily apply the anode treatment methods disclosed by Hatwar to the anode of the organic electroluminescent device of Tokito to produce a device with improved performance. Combining the teachings of Tokito and Hatwar would produce the same organic electroluminescent device disclosed by the applicant.

***Response to Amendment***

The applicant argues that Pat. 7,250,226 recite not just triphenylamine monomers but also triphenyl derivatives and fails to recite the specific claimed monomer.

The examiner counters that Pat. 7,250,226 shows that the broad class of triphenylamine monomer can be used to make phosphorescent polymers (column 11, line 25) and variations of this class would have been obvious to one of ordinary skill in the art at the time of the invention.

The applicant argues that Tokito does not disclose the monomer unit of formula(s) 3 and 5 as recited in claim 1.

The examiner counters that the claimed formula(s) 3 and 5 only differ in the spacer group (linking group) between the triphenylamine moieties and the methyl group on some of the external phenyl rings. The examiner takes the position that the electronic properties of the triphenylamine monomers would be the same or similar since the pi conjugation across a homologous aromatic series would support the flow of electrons in a similar manner. The selection of a spacer group would have included known aromatic spacer groups such as phenyl or biphenyl. Moreover the substitution of a methyl group in place of a hydrogen atom would not result in monomers that give rise to polymers with significantly different electronic properties.



The applicant argues that viTPD and the viPMPD monomers produce polymers with unexpected results in light emitting devices as compared to light emitting devices that include vinyl-carbazole polymers as the hole transporting moiety.

The examiner counter that the unexpected results eluded to by the applicant fails to buttress the case for significant differences in light emitting devices that include polymers made from triphenylamine based monomers that differ in the length of the aromatic spacer groups between the triphenylamine moieties. The use of triphenylamine based monomers versus vinyl-carbazole monomers is not viewed as a good “apples to apples” comparison with respect to the applicants’ arguments.

The broad class of triphenylamine based monomers is well known in the art and variation in the aromatic spacer groups or aliphatic substituents on the external aromatic rings would have been obvious and resulted in materials with similar electronic properties.

The applicant’s arguments with respect to claims 1-11 have been considered but are moot in view of the current grounds of rejection necessitated by the applicant’s amendment.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is (571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1794

GREGORY CLARK  
Examiner  
Art Unit 1794